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BOTANY.—*New mosses from southern Brazil*. EDWIN B. BARTRAM, Bushkill, Pa.

At intervals during the past 15 years I have been receiving carefully selected and beautifully prepared specimens of mosses from Señor Aloysio Sehnem, Colegio S. Inacio, São Salvador, collected in various parts of the Brazilian states of Santa Catarina and Rio Grande do Sul. These have been nicely supplemented by less extensive collection made by Señor P. Raulino Reitz, Herbario Barbosa Rodrigues, Itajai, from the same general area. The total number of species represented is well over 250 distributed in about 120 genera. Preparatory to publishing a complete list of the collections from this interesting temperate region, it seems advisable to describe the following 18 new species that appear in the series. The types of the new species are in the author's herbarium.

FISSIDENTACEAE

Fissidens (Heterocaulon) sehnemii Bartr.,
 sp. nov.

Dioicus; pusillus, dense caespitosus, viridibus.

Caulis erectus, simplex, fertilis brevissimus, sterilis usque ad 3 mm altus; folia plantae sterilis ad 14 juga, late patentia, infima minuta, superiora sensim majora, late ovata, acuta, usque ad 0.4 mm longa/et 0.15 mm lata, integra, lamina vera tantum limbata, prope apicem folii producta, lamina dorsalis longe ultra basin folii enata, basi attenuata; costa infra apicem folii evanida; cellulae ovali-hexagonae, laevissimae, diam. circa 10 μ . Folia plantae fertilis circa 3 juga, comalia multo majora, e basi ovata longe acuminata; seta 3-3.5 mm longa, rubra; theca erecta, oblongo-cylindrica; operculum oblique conico-rostratum; dentes peristomii ad 200 μ longi, filiformiter acuminati, superne irregulariter fissi.

Rio Grande do Sul: Estação São Salvador, in terram, alt. 600 m, A. Sehnem no. 2041.

Near *F. antennidens* C. M. as far as one can judge from the description but distinct in the leaf structure, which shows the vaginant lamina produced nearly to the apex of the leaf and indistinctly bordered only in the comal leaves.

DICRANACEAE

Campylopus (Eucampylopus) sehnemii
Bartr., sp. nov.

Dioicus; robustiusculus, lutescenti-viridis, Caulis erectus, ad 5 cm altus, ubique fusco-tomentosus, dense foliosus. Folia sicca flexuosulo-adpressa, humida erecto-patentia, subequalia, 6-6.5 mm longa, e basi oblonga subulato-acuminata, supra medium serrulata; costa inferne 0.6 mm lata, cellulis ventralibus laxis, dorsalibus stereideis; cellulis laminalibus minutis, rhombeis, basilaribus internis laxo oblongis, parietibus tenuissimis, alaribus haud in ventrem dispositis, internis fuscis, externis hyalinis. Seta circa 8 mm alta, flexuoso-arcuata; theca oblongo-cylindracea, symmetrica; calyptra ignota.

Rio Grande do Sul: Campestre Montenegro, super rupes ad rivum in sole, alt. 400 m, A. Sehnem no. 2310.

A species resembling *C. concolor* (Hook.) Brid. to some extent but with shorter leaves, which are appressed when dry and with different alar cells. In *C. sehnemii* the alar group is poorly defined, brownish within and bordered on the margins with several rows of narrow colorless cells so as to appear intramarginal.

POTTIACEAE

Rhamphidium ovale Bartr., sp. nov.

Dioicum; flos masculus terminalis, gemmiformis. Caulis ad 2 cm altus, gracilis, simplex vel parce ramosus. Folia remota, e basi vaginante subulato-lanceolata, abrupte squarrosopatentia, 2-2.5 mm longa, apice rotundato-obtusa; margines superiores anguste recurvati, indistincte denticulati; costa fusca, pereurrens; cellulae superiores subquadratae, inferiores sensim anguste rectangulares, pellucidae. Seta circa 12 mm longa, rubella; theca suberecta, elliptica, deoperculata 1.5 mm longa; operculum oblique tenuiter rostratum, aequilongum; dentes peristomii rubri, ad 350 μ longi, supra filiformes, dense papilloso, linea media hic illic anguste fissi.

Rio Grande do Sul: Linha Campestre, Montenegro, in declivio argiloso rivi, alt. 450 m, A. Sehnem no. 4999.

Sharply distinct from *R. dicranoides* (C. M.) Bartr. of tropical North America in the ovoid capsules, longer stems and the leaves more abruptly contracted at the shoulders from a longer, tightly clasping base.

Tortella grossiretis Bartr., sp. nov.

Tenella, caespitosa, caespitibus sat densis, viridibus. Caulis usque ad 1 cm altus, dense foliosus, simplex. Folia sicca circinato-incurva, humida erecto-patentia, 4-5 mm longa, carinato-concava, e basi oblonga sensim longe et anguste linearia, subulato-acuminata; marginibus erectis, papilloso-crenulatis; costa breviter excurrente; cellulis subrotundis, grosse papilloso, diam. circa 15 μ , basilaribus hyalinis, rectangularibus, in parte infima laminae limbum angustissimum efformantibus. Caetera ignota.

Rio Grande do Sul: Linha S. Pedro, ad rupem humidam, alt. 450 m, A. Sehnem no. 405.

The relatively large, very coarsely papillose, lamina cells will separate this species from any other member of the genus with which I am familiar. The border of narrow hyaline cells in the upper part of the leaf base is not conspicuous but the structure is typical of the genus.

Leptodontium fuscescens Bartr., sp. nov.

Dioicum; sat robustum, caespitosum, caespitibus densis, fusciscenti-viridibus. Caulis ascendens, usque ad 4 cm longus, simplex vel furcatus. Folia sicca flexuoso-adpressa, humida e basi erecta patentia, carinato-concava, 4-5 mm longa, e basi oblonga lanceolata, sensim tenuiter acuminata; marginibus longe ultra medium folii revolutis, superne grosse et irregulariter serratis; costa infra apicem folii evanida; cellulis laminalibus densis, subquadratis, obscuris, haud incrassatis, diam. circa 10 μ , dense papilloso, basilaribus anguste rectangularibus, parietibus firmis, pellucidis. Caetera ignota.

Rio Grande do Sul: Linha S. Pedro, Montenegro, in humo ad viam, alt. 500 m, A. Sehnem no. 415, type. Pinal. Montenegro, super rupes in sole, alt. 450 m, A. Sehnem no. 2903.

The more slenderly acuminate leaves with narrower, firmer basal cells will distinguish this species from *L. brasiliense* Mitt. It seems to be more closely allied to *L. subgracile* Ren. & Card. but differs in the more slenderly acuminate leaves with the lamina cells dense and obscure and not at all incrassate.

Barbula (Helicopogon) riograndensis
Bartr., sp. nov.

Dioica; caespitosa, caespitibus densis, fusciscenti-viridibus, opacis. Caulis erectus, ad 2 cm longus, dichotome ramosus, dense foliosus. Folia sicca spiralliter imbricata, humida late

patentia, circa 2.5 mm longa, oblongo-lingulata, obtusiuscula, mucronata; marginibus fere ad apicem late revolutis, integris; cellulis laminalibus minutis, diam. circa 10μ , obscuris, dense papillois, basilaribus internis breviter rectangularibus, pellucidis, externis subquadratis; costa in mucronem luteum valde denticulatam excurrente, dorso superne scabro.

Rio Grande do Sul: Quilombo, super rupes, alt. 30 m, A. Sehnem no. 195, type. Pinheiral, Santa Cruz d. Sul, super rupes, alt. 100 m, A. Sehnem no. 2409.

Suggestive of a small *Tortula* in many ways but the costa in cross section showing both dorsal and ventral stereid bands is decisive. The short, yellowish, strongly toothed mucro will distinguish this species from any of the relatively few *Barbula* species known from Brazil.

BRYACEAE

Epipterygium brasiliense Bartr., sp. nov.

E. immarginato Mitt. habitu staturaque simile, sed foliis angustioribus, oblongis.

Rio Grande do Sul: Pinheiral, Santa Cruz, ad terram rivulic alt. 100 m., A. Sehnem no. 2350.

The distinctions between this species and *E. immarginatum* Mitt. of Central America are not impressive, but the gap in distribution is so wide that I hesitate to combine them. In *E. brasiliense* the leaves are oblong, about 3 mm long, and 1.1 mm wide, while in *E. immarginatum* the leaves are ovate, about 2.5 mm long, and 1.5 mm wide. The only other species recorded from Brazil is *E. Puiggarii* (Geh. & Hpe.) Broth., a smaller plant with the lateral rows of leaves little differentiated from the dorsal rows.

Bryum (Cladodium) riograndense Bartr., sp. nov.

Dioicum; tenellum, caespitosum, caespitibus sat densis, fusciscenti- viridibus. Caulis 8-10 mm altus, inferne fusco-radiculosus, innovationibus pluribus. Folia sicca arcte contorta, humida late patentia, 1-1.5 mm longa, late ovata, obtusa; marginibus inferne leniter revolutis, superne denticulatis, limbata, limbo e seriebus cellularum 3-4 formato; costa infra apicem folii evanida; cellulis teneris, late rhomboideis, circa 30μ longis. Seta 8-9 mm longa; theca horizontalis, pyriformis, cum collo 2 mm. longa; dentes peristomii c. 375μ longi, lutei, endosto-

mum liberum, pallidum, processus carinati, perforati, cilia bina, nodosa, haud appendiculata; operculum conicum, obtusum.

Rio Grande do Sul: Santa Cruz, ad rupes in rivo, alt. 80 m, A. Sehnem no. 2347. Estacao São Salvador Montenegro, ad rupes rivuli, alt. 400 m, A. Sehnem no. 2788, type.

A neat, attractive little species evidently near *B. maynense* Spr. but distinct in the more broadly ovate obtuse leaves.

Bryum (Eubryum) riparioides Bartr., sp. nov.

Dioicum; caespitosum, caespitibus densis, sorde viridibus. Caulis 6-8 mm altus, inferne denudatus, innovationibus 5-6 mm longis. Folia conferta, sicca laxe imbricata, humida patentia, 2-2.3 mm longa, oblongo-lanceolata, concava, elimbata; marginibus supra medium folii anguste revolutis, superne minute denticulatis; costa crassa, in apicem folii evanida; cellulis ovali-hexagonis, parietibus firmis, infimis subquadratis. Seta 2-2.5 cm longa, rubra; theca pendula, anguste pyriformis, cum collo 3 mm longa; dentes peristomii lutei, endostomium hyalinum, corona basilaris longe ultra medium dentium producta, cilia appendiculata.

Rio Grande do Sul: Vila Oliva, S. Franc. d. Paula, alt. 600 m, A. Sehnem no. 2739, super rupem ad rivum.

A species suggestive of *B. pseudotriquetrum* (Hedw.) Schwaegr. in some ways but quite distinct in the unbordered leaves.

Rhodobryum majus Bartr., sp. nov.

Habitu *R. glazioviano* sed robustius, olivaceo-viride vel fusciscentis. Folia majora, ad 15 mm longa, 6 mm lata, obovata, breviter acuminata, limbata, limbo valido, superne e 3-4 seriebus cellularum composito, spinoso-serrato; cellulis superioribus ad 125μ longis. Fructus ignotus.

Rio Grande do Sul: Serra de Rocinha, Bom-jesus, in humo in silva, alt. 1,000 m, A. Sehnem no. 4787.

A more robust plant than *R. glaziovianum* Hpe. with larger leaves spinose-serrate on the upper margins and with much larger upper leaf cells. The lack of reddish color is also noteworthy.

ORTHOTRICHACEAE

Orthotrichum (Speciosa) sehneii Bartr., sp. nov.

Antoicum; pusillum, caespitosum, caespitibus densis, pallide viridibus, intus fusciscentibus.

Caulis 5-6 mm. altus, dense foliosus, ramosus. Folia sicca laxa adpressa, leniter contorta, humida late patentia, 2 mm longa, oblongo-ovata, carinato-concava, acuta; marginibus anguste recurvis, integris; costa infra summum apicem evanida; cellulis superioribus rotundatis, incrassatis, papillosis, inferioribus internis breviter rectangularibus. Theca breviter emersa, oblonga, 2 mm longa, stomatibus superficialis, sicca profunde 8-plicata; exostomii dentes sicca reflexi, per paria connati, pallidi, dense minutissime papillosi, processus 8, breviores, laevissimi; spori 12-15 μ , laeves; calyptra pilosa.

Rio Grande do Sul: Arroio Kruse, in arbore, alt. 10 m, A. Sehnem no. 184.

Possibly near *O. parvum* Herz. of Bolivia, from which it differs in the strongly ribbed capsule, narrower and shorter segments of the endostome, and shorter-pointed leaves.

Macromitrium nematosum Bartr., sp. nov.

Caespitosum, caespitibus viridibus, intus atro-fuscescentibus. Caulis repens, ramis erectis, ad 1.5 cm longis, dense foliosis. Folia ramea sicca arete crispata, humida late patentia, c. 3 mm longa, filis articulatis fuscis, numerosis ornata, oblongo-lanceolata, breviter acuminata vel acuta; marginibus valde undulatis, superne irregulariter dentatis; costa infra summum apicem folii evanida; cellulis laminaribus rotundato-hexagonis, haud incrassatis, diam. c. 10 μ , basilaribus anguste rectangularibus, parietibus firmis, laevissimis. Caetera ignota.

Rio Grande do Sul: Estação São Salvador, ad arborem in silva, alt. 600 m, A. Sehnem no. 2774.

Unfortunately this collection lacks fruit, so that the species cannot be accurately located, but the numerous brownish septate filaments up to 0.35 mm long, confined principally to the ventral faces of the leaves, is a curious feature without parallel in the genus as far as my experience goes.

Macromitrium (Leistoma) perfragile
Bartr., sp. nov.

Caespitosum, caespitibus viridibus, intus fuscescentibus. Caulis elongatus, repens, ramis erectis, ad 1.5 cm. longis. Folia ramea sicca crispata, humida patula, anguste lanceolata, 3-3.5 mm. longa, longe subulato-acuminata, apice in cuspidem viridem, fragillimam sensim constricta; marginibus superne minute erosio-

denticulatis; costa in acumen evanida; cellulis minutis, diam. 6-8 μ , rotundatis, mamillosis, basilaribus linearibus, incrassatis, laevissimis. Caetera ignota.

Rio Grande do Sul: Fazenda S. Borja, S. Leopoldo, in arbore, alt. 50 m, A. Sehnem no. 427. Rio dos Sinos, S. Leopoldo, alt. 10 m, A. Sehnem no. 432. Aparados, Bom Jesús, in arbore, alt. 100 m, A. Sehnem no. 576. Campestre Montenegro, in arbore, at. 450 m, A. Sehnem no. 2175. Vila Oliva, S. Franc. d. Paul, in arbore, alt. 750 m, A. Sehnem no. 2630, type 9.

Possibly near *M. fragilicuspis* Card. of Mexico and Guatemala but distinct in the mamilliose lamina cells not in vertical rows and the smooth basal cells.

NECKERACEAE

Pinnatella brasiliensis Bartr., sp. nov.

Gracilescens, lutescenti-viridis, opaca. Caulis primarius elongatus, lignosus. Caules secundarii numerosi, lignosi, ad 4 cm longi, stipitati, superne bipinnatim ramosi, stipite ad 2 cm longo, foliis pallidis, obovatis, breviter acuminatis, plerumque destructis instructo; ramis densis late patentibus, sicca apice valde decurvis. Folia caulina late ovata, breviter acuminata, 2 mm longa, 1.2 mm lata; marginibus fere ad basin irregulariter serrulatis; costa crassa, longe ultra medium folii evanida; cellulis superioribus rotundato-hexagonis, diam. 10-15 μ , laevissimis, infimis linearibus, parietibus pellucidis. Folia ramea et ramulina multo minor, 0.5-0.6 mm longa, orbiculari-ovata, cellulis superioribus incrassatis, vix unipapillosis. Caetera ignota.

Rio Grande do Sul: Estação São Salvador, ad arborem in silva, alt. 600 m, A. Sehnem no. 2772.

When dry the slender branches of the fronds are contracted and strongly decurved at the tips. When moist and relaxed the branches form a dense ovate frond with the pinnae decreasing in length upward. Filiform microphyllous branchlets are produced sparingly in some of the fronds.

HOOKERIAEAE

Hookeriopsis armata Bartr., sp. nov.

Synoaica; caespites decumbentes, purpurascens. Caulis repens, parve ramosus, obtusis, complanatus, c. 4 mm latus. Folia conferta, late

patentia, 2 mm longa, oblongo-ovata, breviter acuminata, humida leniter undulata; marginibus planis, superne argute serratis; costis binis, supra medium folii evanidis; cellulae superiores anguste rhomboideae, margines versus angustiores, basilares anguste lineares. Folia perichaetialia minor; seta 10–12 mm longa, rubella, apice arcuato; theca nutans, oblongo-cylindrica, deoperculata 1 mm longa; calyptra pallida, parce pilosa.

Santa Catarina: Armacão do Sul, Ilha de Santa Catarina, ad lignum putridum in silva, alt. 150 m, A. Sehnem no. 3190. Morro do Antão, Ilha de Santa Catarina, ad lignum putridum in silva, alt. 250 m, A. Sehnem no. 3198, type.

The short-pointed leaves coarsely serrate above seem to clearly distinguish this species from either *H. rubens* (C. M.) Broth. or *H. lonchopelma* (C. M.) Broth., which, to judge from the descriptions, are its natural allies.

SEMATOPHYLLACEAE

Sematophyllum reitzii Bartr., sp. nov.

Autoicum; caespites decumbentes, densi, fusciscenti-virides, nitidi. Caulis repens, irregulariter ramosus, ramis ad 2 cm longis, parce ramulosis, saepe cuspidatis. Folia ramea erecto-patentia, conferta, laxe imbricata, oblongo-ovata, breviter acuminata, concava, integra, ecostata, 2 mm longa, 0.8 mm lata; margines erecti; cellulae superiores anguste rhomboideae, inferiores lineares, alares numerosae, auriculatae, fusciscentes, infimae oblongae vesiculosae, supra subquadratae. Seta rubra, c. 15 mm. longa; theca oblonga, horizontalis, deoperculata 1.5 mm. longa.

Santa Catarina: Campo dos Padres, alt., 1,900 m, P. Raulino Reitz no. 2.644.

A well-marked species in the sharply defined auriculate group of alar cells, which are transversely divided so that the lower cells in the group are oblong and the cells above subquadrate.

Sematophyllum riparioides Bartr., sp. nov.

Autoicum; caespites laxi, laete virides. Caulis repens, parce ramosus. Folia ramea sicca et humida late patentia, oblonga, concava, ecostata, breviter et late acuta, integra, 2.5 mm longa, 0.7–0.8 mm lata; margines erecti; cellulae superiores lineari-rhomboidae, dense chlorophyllosae, inferiores lineares, alares vix vesiculosae, rectangulares, male definitae. Seta rubra, 10–12 mm longa; theca oblonga, horizontalis, deoperculata 1.5 mm longa.

Rio Grande do Sul: S. Francisco de Paula, in terra juxta rivulum, alt. 900 m, A. Sehnem no. 4635.

The numerous transversely divided alar cells suggest some affinity with *S. reitzii* but the distinctions are sharply marked. Here the shorter pointed leaves are laxly spreading when dry and the alar group neither inflated nor conspicuous and not at all auriculate.

Acroporium sehnemii Bartr., sp. nov.

Autoicum; caespitosum, caespitibus densis, lutescenti-viridibus. Caulis dense ramosus. Folia patentia, 2–2.5 mm longa, e basi oblonga sensim lanceolato-subulata, ecostata; marginibus integris vel superne minutissime denticulatis; cellulis angustissime linearibus, laevissimis, alaribus magnis, oblongis, vesiculososis, fuscis. Folia perichaetialia suberecta, in acumen integrum sensim angustata; seta 5–8 mm longa, rubra, ubique laevissima; theca e collo brevi, elliptica, erecta, vix 1.5 mm longa.

Rio Grande do Sul: Campestre Montenegro, in ramulis arboris viridis ad rivum, A. Sehnem no. 2266, type. Feitoria, alt. 30 m, A. Sehnem no. 106. Santa Catarina: Mata Hoffmann, epifita da mata, alt. 50 m, P. Raulino Reitz no. 3.149.

Sharply distinct from the widely distributed *A. pungens* (Hedw.) Broth. in the autoicous inflorescence, the narrower leaves, and shorter, entirely smooth setae.